

WHAT IS CLAIMED IS:

Sub 21

1. A tight-buffered optical fiber, comprising:
an optical fiber;
at least a first buffer layer of a polymer material enclosing said optical fiber; and
a plurality of strength members embedded in said first buffer layer and longitudinally positioned with respect to said optical fiber.
2. The tight-buffered optical fiber of Claim 1, wherein said first buffer layer is constructed from a material that is converted from a liquid curable composition into a cured polymeric material during fiber manufacture.
3. The tight-buffered optical fiber of Claim 2, wherein said first buffer layer is a radiation curable material.
4. The tight-buffered optical fiber of Claim 2, wherein said first buffer layer is a thermally curable material.
5. The tight-buffered optical fiber of Claim 2, wherein said first buffer layer is an acrylate.
6. The tight-buffered optical fiber of Claim 1, further comprising:
a second buffer layer of polymer material enclosing said first buffer layer; and
a plurality of strength members embedded in said second buffer layer and longitudinally positioned with respect to said optical fiber.
7. The tight-buffered optical fiber of Claim 6, wherein said first and second buffer layers are constructed from a material that is converted from a

liquid curable composition into a cured polymeric material during fiber manufacture.

8. The tight-buffered optical fiber of Claim 7, wherein said second buffer layer is a radiation curable material.

9. The tight-buffered optical fiber of Claim 7, wherein said second buffer layer is a thermally curable material.

10. The tight-buffered optical fiber of Claim 7, wherein said second buffer layer is an acrylate.

11. The tight-buffered optical fiber of Claim 1, wherein the strength members are yarns selected from the group of aramid, fiberglass, and liquid crystal polymer yarns.

12. The tight-buffered optical fiber of Claim 6, wherein the strength members are yarns selected from the group of aramid, fiberglass, and liquid crystal polymer yarns.

✓ 13. A method of making a tight-buffered optical fiber, comprising:
passing an optical fiber through an applicator;
placing a plurality of strengthening yarns longitudinally around said optical fiber in said applicator;
applying a first buffer layer in liquid form over said optical fiber;
and
curing said first buffer layer.

14. The method of Claim 13, wherein said step of applying a first layer includes the substep of:

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embedding said plurality of strengthening yarns in said first buffer layer.

15. The method of Claim 13, further comprising:

locating a second plurality of strengthening yarns longitudinally around said cured first buffer layer;

applying a second buffer layer in liquid form over said first buffer layer; and

curing said second buffer layer.

16. The method of Claim 15, wherein applying a second buffer layer includes:

embedding said second plurality of strengthening yarns in said second buffer layer.

17. The method of Claim 13, wherein said curing comprises irradiating said first buffer layer with thermal radiation.

18. The method of Claim 13, wherein said curing comprises irradiating said first buffer layer with ultraviolet radiation.

19. The method of Claim 13, further comprising extruding a protective layer over said first buffer layer.

20. The method of Claim 15, further comprising extruding a protective layer over said second buffer layer.

✓ 21. An optical fiber cable, comprising:
at least one tight-buffered optical fiber including an optical fiber,
at least a first buffer layer of a polymer material enclosing said optical fiber, a

plurality of strength members embedded in said first buffer layer and longitudinally positioned around said optical fiber; and
an overall jacket enclosing said at least one tight-buffered optical fiber.

22. The optical fiber of Claim 21, further comprising means for blocking water propagation between said overall jacket and said at least one tight-buffered optical fiber.

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